Clinical and other Notes.

DISINFESTATION OF BARRACKS.

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The following short account of disinfestation of barracks on a large scale may be of interest to officers of the Corps.

The Army of the Rhine was given only two months to evacuate Cologne and occupy Wiesbaden area, and, although there was no certain evidence that the barracks being taken over were pest-ridden, it was thought better to have a scheme in readiness in case they might be so. Amongst others, the representative of a firm in Frankfurt-a-M. called, and at an interview explained the use of a substance with the trade name of Zyklon “B.” This is used extensively by the German Government and municipalities for disinfestation of buildings, flour mills, etc., and for disinfection of ships; it has also been used very successfully for ridding orange groves in Spain and Egypt of pests. The evidence produced of its efficacy was so convincing that it was decided, if needful, to use this process.

Zyklon “B” is really a siliceous earth impregnated with hydrogen cyanide, to which is added a tear gas. It is rather like grape nuts in appearance, and is put up in large tins.

As one of the forerunners of our Army in Wiesbaden I had time to investigate the condition of barracks, and, with the inventor of Zyklon “B” (Dr. Heerdt), we gained admittance on one pretext or another to barracks and schools about to be occupied by our troops, finding, as was expected, evidence of bedbugs, lice, fleas, cockroaches, in almost all of them. In cold weather bedbugs are not easy to detect, but a squirt of turpentine wakes them up and brings them out of hiding.

The gassing of buildings takes place as follows:

After measuring the building a gang of workmen is employed to paper up all windows, doors and holes, where an escape of gas is possible. As soon as this is completed the gas party commences work; first to mark out with chalk on the floors how many tins are required for each room. The required number of tins are then opened outside by means of a special instrument, the top removed and replaced by a rubber cap. The tins are then carried into the building and placed inside the rooms. After the distribution the party put on gas masks and commence at the top of the building to empty the tins on the floor. When the workers are all accounted for the last door is locked and papered.
After the lapse of six hours the gas has been sufficiently effective with a concentration of 1 per cent., providing the temperature in the building is not under 50° F. If lower the building must be heated, for heat is necessary to stimulate the respiration of all insects.

After six hours the gas party protected by masks again enter the building and open up all doors and windows. Even during ventilation it is necessary to have the building sufficiently heated, otherwise the gas would remain too long on walls and articles inside the rooms. Ventilation is finished as soon as a gas test with windows and doors closed proves to be negative. The test is done with white blotting-paper wet by certain chemicals, the paper turning blue in the presence of minute traces of hydrogen cyanide.

The whole procedure in large barracks from the beginning of the papering to the handing over of the building takes about five to seven days. When the weather is favourable, dry and windy, this time is shortened.

As to the result—up to date of writing, almost two months after the first building was gassed, no pests have been detected. The entomologist of the New Museum, Wiesbaden, kindly carried out experiments on the first occasion and reported as follows:—

"When the Lorcherschool was being disinfected I placed bedbugs (Cimex lectularius L.) in all stages of developing from egg to adult, in different rooms.

"Test in Room No. 16. Test tube fitted with cork.
"Test in Room No. 30. Test tube fitted with wadding.
"Test in Room No. 35. Test tube fitted with cork, tube placed in a second (tin) tube, and this again in a wooden tube.

"After disinfection, it was proved that all eggs and bugs were destroyed."

It is essential to have a well-trained and very reliable staff to carry out this method. Hydrogen cyanide is an extremely deadly gas and therefore at all times it is very dangerous. This method is so very simple and so easy to work, that it is doubly dangerous, and this is really the only drawback to its use in the Army. Two of my sanitary assistants were trained in its use, but were not employed because of the size of the operations carried out, the short time allowed between evacuation of barracks by the French and our occupation, in places fifty miles apart, and also the feeling that one slight error in judgment or slackness probably resulting in a death would cast a shadow on the entire operation.

Given time and a trained staff one can see a future for the use of Zyklon "B" in the Army, for ridding barracks and hospitals, especially in tropical countries, of pests, and one has in one's mind now, the wards of a certain large hospital where bugs used to drop from the high-painted ceilings on to the patients and the nursing sisters. That hospital is still in use and it is presumed the bugs are still dropping. By this method the building could be easily cleared of the pests.
Bedsteads and furniture, blankets, etc., can easily be done in any room set apart for this purpose.

This is not a cheap process. Zyclon "B" can be purchased from the firm and if used by our own trained men the cost would be considerably lessened.

In conclusion, a few remarks about the chemical and physical nature of hydrogen cyanide in contradistinction to sulphur dioxide, which is generally used for destruction of vermin.

The diffusion capacity of hydrogen cyanide is only just inferior to that of $\text{H}_2$ and $\text{CO}_2$. To this circumstance and to the extraordinary venom with which hydrogen cyanide attacks living objects, cyanide owes its good results in practice.

The gas penetrates even the smallest cracks and where a bug can penetrate the gas can follow; that eggs are as effectively dealt with as adults has been proved by Newstead.

Furniture and foodstuffs are unaffected owing to its chemical inactivity. Sulphur dioxide on the other hand, has the disadvantage of a heavy specific gravity, and its diffusion capacity is very low. On account of its specific gravity it does not mix readily with air, especially in upper parts of a room. Even if it reaches the ceiling it has been proved that seventy-five per cent of the gas will be absorbed by the chalk and become non-effective. Action on living objects is less. In addition it has a detrimental action on very many articles of furniture and on fabrics, on which it remains as sublimated sulphur.

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A CASE OF MYIASIS OF THE TEMPORAL BONE.

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The patient, Mrs. D., was admitted to the Military Families Hospital, Belgaum, on May 11, 1925, suffering from extreme pain in the head and a temperature of 104°6 F.

On the removal of "home-made" dressings, an open, deep and foul-smelling wound was found behind the left ear, and in this larvae were seen moving about. The débris in the cavity was syringed out with hydrogen peroxide, and it was then seen that a very large number of larvae were attached to the walls of the cavity and boring with a very active and "vicious"-like corkscrew motion. The activity of the larvae was such as to suggest extreme hunger and a determination to get food at all costs. They were holding on so tightly to the tissues that an attempt to forcibly remove one with forceps only resulted in increasing the pain and rupturing the larva.

1 Approximately 525,000 cubic metres have been gassed in this area.